

JACOBS

FILE:

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SUBJECT: City and County of Honolulu
Honolulu High-Capacity Transit Corridor Project
Master Program Schedule Meeting

REFERENCE: Project Management Oversight Contractor Services for US DOT/FTA
FTA Contract: DTFT60-09-D-00012 / FTA Project: DC-27-5140
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1.0 INTRODUCTION

The purpose of this report is to provide a summary of items discussed during a Master Program Schedule (MPS) Meeting held on March 2, 2010 with the City and County of Honolulu Project Controls Staff.

2.0 MEETING SUMMARY

The PMOC began the meeting by explaining the reason for discussing the technical intricacies and management approach for time management; development, updating, and archival of the master program schedule. The PMOC stated this exercise was meant to be a one-time overview and not a routine (monthly) protocol. We explained the importance of developing all fundamental procedures, processes and tools for time management now, rather than later in the program when it will be more difficult, inefficient and less economical too make changes across the program as other scheduling parties will be impacted by changes. Part of this exercise was also meant to give the PMOC a progress status and detection of how well the City's program control staff collaborates with their consultants and provide an indication of the team's technical capacity and capability to continue the program with adequate control methods.

2.1 Technical Items

2.1.1 WBS

The City provided a recently revised Work Breakdown Structure (WBS) in hardcopy to support the meeting discussion. The WBS contains five (5) Levels:

- Level 1 – Project Segment
- Level 2 – Location
- Level 3 – Specific Location
- Level 4 – General Work Categories (CSI)
- Level 5 – Specific Work Categories (Specs)

The PMOC inquired why Construction Specification Institute (CSI) divisions were used in the WBS. The City said they thought it would be a good way to further divide the sequencing of work related between the schedule and the cost loading activity coding. The PMOC inquired if the designers or contractors would be paid based on CSI division work progress or pay items, and the City said that was not the case. The PMOC noted the first three WBS LEVELS were intuitive but questions the value of using CSI division level formatting for WBS Levels 4 and 5. The City agreed to re-evaluate the WBS Levels 4 and 5 and will alter determine if CSI is necessary.

2.1.2 Activity Coding

The City also uses Activity Coding within the MPS and supplied a hardcopy to support the meeting discussions. The PMOC only comment was to ensure that the WBS and activity coding were structured or schedule organization and filtering purposes for upstream and downstream reporting for all schedule parties ultimately involved on the Program. The PMOC also suggested the City provide each scheduling party (consultants, vendors, contractors and subcontractors) a standardize schedule file template to ensure all schedule libraries and hierarchical structures are similar.

2.1.3 Calendar Library

The PMOC again suggested the City provide each scheduling party (consultants, vendors, contractors and subcontractors) a standardize schedule file template to ensure all schedule libraries and hierarchical structures are similar.

2.1.4 Resources

The City stated the MPS is cost-loaded but not resource-loaded. The City does not intend to incorporate resource-loading. The PMOC stated that if they do not require the program scheduling parties (consultants, vendors, contractors, and subcontractors) to use resource-loading, then each scheduling party's basis of schedule should be clearly and finitely detailed to include all assumptions used to determine activity durations, crew sizing and equipment optimization and utilization for each project schedule. In addition, the PMOC suggested the City do the same with their MPS Basis of Schedule.

2.2 Airport Alignment

The City said they have not incorporated the airport alignment into the MPS due to the outstanding decisions related to the alignment near the airport and any pending resolution between the FTA/FAA and the City regarding the runway protection zone. The PMOC recommended the City include a baseline assumption that is commensurate with the current program budget assumptions and the basis of estimate and progress against that assumption until a resolution is determined.

2.3 Development and Update Process

2.3.1 Schedule Types

The PMOC asked the City to refer to the current approved PMP to identify the schedule types. The City said they recently completed a draft revision of the PMP but was not able to identify the

schedule types in the new revision. The PMOC listed the following possible schedule types to support the meeting discussion:

- Master Program Schedule
- ROW Schedule
- Consultant Schedule(s) (A/E firms, PMSC, GEC1 & GEC2)
- Supplier/Vendor Schedules(s) (Vehicles, Fare Collection, equipment, etc.)
- Prime Contractor Schedule(s)
- Subcontractor Schedule(s)
- Third Party Schedule(s)

2.3.2 MPS

The City and the PMOC discussed the schedule types and the scheduling parties involved with developing and maintaining the schedules; and how the schedules were to be incorporated into the MPS.

The City developed a Master Project Schedule (MPS) and “baselined” the MPS at the request of the PMOC in the fall of 2009. The most recent MPS update was issued on October 19, 2009. *[Note: An update was provided during the Progress Meeting with a data date of February 15, 2010.]* The City should further refine the MPS and begin submitting monthly progress updates as required as part of their condition to enter the Preliminary Engineering phase. The City stated they could not revise the MPS due to not knowing when a Record of Decision would be issued. During the PMOC on-site visit in March 2010, the PMOC re-emphasized the importance of maintaining the program schedule with up to date information.

2.3.3 Right of Way (ROW) Schedule

The City provided a hardcopy of the current ROW Schedule to support the meeting discussion. The ROW Schedule is very detailed and intuitively organized and sorted. The summarized version of the ROW Schedule is included in the MPS.

The PMOC noted the abundant inclusion of condemnation activities in the MPS and asked why so many were on the critical path. The City stated the previous PMOC requested these activities be included in the MPS. We told the City they should do what they think is best and did not “have to” include the condemnation activities unless they thought condemnation was highly likely respective to each take. The PMOC noted several methods that could be used to account for the additional time needed if condemnation was necessary. The PMOC suggested the City consider using a site plan, PowerPoint, or similar visual aid document that demonstrates ROW acquisitions progress for each project construction contract segment as an easier way to communicate with other team members not well versed in CPM scheduling.

2.3.4 Other Schedule Types (Contractor Schedule)

The City has received and is currently reviewing the WOFH DB Contract baseline detailed CPM schedule. The City stated they completed their internal review of the contractor’s schedule and that it was within the City’s department for final signature, at such time it would be submitted to the PMOC. The City said they have performed four over-the-shoulder reviews of the contractors schedule and noted the contractor’s scheduler did not have extensive experience. They also

noted the contractor had other resources intermittently supporting the contractor's scheduler. The PMOC asked if there were any contractual requirements stipulating pre-approval of a "competent scheduler". The City said they did not like to include such requirements and the PMOC suggested they should for all key contractor management positions. Moreover, the PMOC suggested the City should smartly and promptly document any reservations they have regarding the construction contractor's management staff technical capacity and capability.

2.3.5 Other Schedule Types (Consultant, Vendor, Supplier, etc.)

The City has received a consultant schedule from the GEC I and the PMSC, both of which are included in the MPS. It became apparent during the meeting that the City has not yet planned or given much consideration for the development and incorporation of vendor and supplier schedules into the MPS.

2.3.6 Standardization

The PMOC emphasized the importance of setting standards and templates for a Program. These procedures enable a program management team to collect time management information in a consistent, traceable and transparent method where all scheduling parties are using the same procedures and processes. This primarily enables the program management team to roll-up project level reporting information to most efficiently and effectively decipher and analyze the schedule information in order for the program management team to make well informed decisions and implement corrective course of actions during the schedule update process. The PMOC reviewed each of the topics below to understand if and how the City has addressed them within their PMP time management procedures and general program control procedures and processes.

- (1) CPM schedule specifications
- (2) WBS library
- (3) Activity coding library
- (4) Calendar library
- (5) Resource library
- (6) Cost code and cost loading rules
- (7) "Autocost" rules and related software setting defaults
- (8) Critical Path software setting as Longest Path, not Total Float less than 1
- (9) CPM Specifications and General Provisions for scheduling
- (10) Schedule file naming conventions
- (11) Schedule Activity ID naming and description conventions
- (12) Schedule Milestones (project specific)
- (13) Basis of Schedule narrative format and outline
- (14) Schedule Report formats
- (15) Schedule submittal and review procedures
- (16) Schedule disposition procedures
- (17) Schedule Time Impact Analysis procedures for the review and disposition for equitable adjustments for excusable delay claims and or compensable delay claims.
- (18) Change Management process related to time management and cost management for all schedule parties

- (19) Sequencing and timing of procurement activities such as material, equipment and construction material procurement processes (shop drawings, review, disposition, fabrication, delivery, inspection, installation, etc.)

The development and implementation of such standards and templates should begin well before construction contracts are advertised for procurement, and theoretically established before engineering consultants are under contract with the City.

The PMOC discovered that the City and its consultants have not established schedule standards or templates and acknowledged that they need to address most of these topics with the WOFH DB Contractor (Kiewit). The PMOC believes these templates should have been set before the procurement process started for the WOFH DB Contract. The PMOC discussed this issue at the November 2009 PE Kickoff Meeting. Furthermore, the PMOC recommended the City provide an amended CPM schedule specification to the WOFH DB Contract and make sure all other construction contracts on the program contain said specification, procedures and processes related to project and program schedule coordination.

2.3.7 Schedule Review Process & Dispositions

The PMOC asked the City to explain their CPM schedule specification requirements and supporting documentation that describes the entire schedule submittal process. The City said they do not have a business work process diagram or similar flow chart that explains the detailed process. The PMOC explained a typical submittal process for a baseline schedule submittal as illustrated below:

- (1) Contractor prepare schedule, basis of schedule (narrative), and “burned” CD
- (2) Contractor prepare submittal transmittal cover letter and assign document control number
- (3) Contractor transmit schedule submittal package (via mail, overnight, hand delivery, electronic transmission, etc.)
- (4) City date stamp delivery and record Contractor submittal package information and assign document control number to received submittal package
- (5) City store submittal package in document repository
- (6) City distribute schedule submittal package to review team
- (7) City review team check package for “transmittal conformity” (Does the submittal package contain all of the material listed on the transmittal cover letter?)
- (8) City conduct review of schedule transmittal package
- (9) City decide on document disposition of schedule submittal package
- (10) City prepare disposition transmittal cover letter
- (11) City assign document control number to schedule transmittal package
- (12) City transmit disposition of schedule transmittal package to Contractor
- (13) City record disposition transmittal in document repository

For example, the City stated the WOFH DB Contractor (Kiewit) submitted four (4) revisions of the baseline schedule for acceptance and had not followed some of the basic steps listed above, though the City said they would be able to trace the transmittal history.

The PMOC also explained how this process would be sequenced for monthly schedule update reviews and that it was critical to stagger schedule reviews when multiple consultant and construction contractors would be submitting monthly schedule updates so as not to overload City resources during the review and reporting process. The PMOC explained how to stagger schedule data dates, design/build contractor and design-bid-build-contractor review meetings, and how to stagger multiple progress payment applications and related monthly review procedures. The City acknowledged that they had not planned for or given much consideration to this process.

The PMOC suggested the City create a flow chart describing a similar process and provide it in the contract documents and describe the process during the pre-construction conferences.

2.3.8 Schedule Archival and Related Document Management

The PMOC briefly addressed the importance of implementing claims avoidance techniques before schedules are developed, and especially before they are accepted and later progressed. One of the most important claim avoidance techniques is using a document management system for the development, transmission, and storage of all program documents. We focused on how schedule submittal packages were developed, transmitted and received from the WOFH DB Contractor to the City; and where the document transmittals were kept in repository.

The City acknowledged that they have not well documented the schedule submittals and dispositions and stated they were currently developing a document repository system. The PMOC stated they should provide a solution immediately and also noted a good document management system will support their credibility, especially if they ever do enter arbitration, mediation or litigation resulting from claims submitted by the construction contractor(s).

2.3.9 Contract Delivery Method (DB and DBB)

The City stated they would evaluate the success and manageability of the WOFH DB Contract and decide in the near future if they will continue to use this contract delivery method for the Airport and City Center guideway segments.

2.3.10 Entry into Final Design Road Map Items

The City and the PMOC agreed there could be no extensive discussion until a ROD has been issued. The PMOC did state that program management baseline documents for scope, schedule and budget will be necessary to support the PMOC risk assessment that will occur as one of many requirements for entry into the final design phase. The PMOC also stated that other concurrent activities may occur during the risk assessment process.

2.4 Monthly & Quarterly Reporting

The City agreed to develop a report outline and provide to the PMOC for review and comment by the next monthly meeting planned for April 7, 2010. The PMOC agreed to supply example reports that focus on Scope, Schedule and Budget. The PMOC emphasized the importance of tracking the baseline program documents against any variances identified during the monthly reporting process. The PMOC said they do not have a contractual requirement to provide monthly or quarterly reports to the City. The PMOC expressed concern that the City has no

managerial reporting controls in place to track the PMSC or the GEC consultant performance against the program baseline scope, schedule and budget.

2.5 Conclusion

2.5.1 PMOC Findings

- (1) The PMOC believes the City's program controls team is not experienced with developing, updating and overseeing program level schedules.
- (2) The City has not identified all "schedule types" and scheduling parties within the program.
- (3) The City has issued an insufficient CPM scheduling specification under the WOFH DB Contract (Kiewit).
- (4) Kiewit has struggled to develop a baseline project schedule for the WOFH DB Contract.
- (5) The City has poorly documented the schedule review process and dispositions of the Kiewit baseline project schedule.
- (6) Review of Kiewit schedule was not thorough due to poor specification requirements and what appear to be City review team technical capability issues.
- (7) The City has conducted several informal over-the-shoulder reviews with the Kiewit scheduling staff during their baseline schedule development process.
- (8) In March 2010, the City submitted the first update the MPS since October 2009.
- (9) The City's ROW schedule is very detailed and adequately summarized in the MPS.
- (10) The City has demonstrated a low technical capacity and capability to manage and oversee the MPS and project level schedule efforts; and will be very challenged to oversee multiple construction contracts when the program hits its peak.
- (11) The City has added another position to develop and implement a program collaborative web-based portal for time management and document management oversight that includes Primavera Scheduling software and Primavera Contract Manager.
- (12) The City received two Written Notices of Potential Change from the WOFH DB contractor (Kiewit) during the first week in March 2010. The notice documents the contractor's reserved right to submit a claim in the future and does not serve as a claim itself.

2.5.2 PMOC Recommendations

- (1) The PMOC recommends the PMSC immediately produce reports for the City and the FTA/PMOC in order to provide meaningful progress update information and analysis to support program management (senior management) decision making and corrective actions in order to successfully execute the program.
- (2) The City should develop a standard CPM scheduling specification and submit it for PMOC review and comment. The CPM scheduling specification should be incorporated in all design and construction, vendor and equipment procurement contract documents.
- (3) The City should amend a revised CPM Scheduling specification in the WOFH DB Contract with Kiewit.

- (4) The City should create a standardized procedures, schedule templates and library structures for all program scheduling parties to use. Such items include, but are not limited to:
 - a. CPM Specifications
 - b. WBS library
 - c. Activity coding library
 - d. Calendar library
 - e. Resource library
 - f. Cost code and cost loading rules
 - g. "Autocost" rules and related software setting defaults
 - h. Critical Path software setting as Longest Path, not Total Float less than 1
 - i. CPM Specifications and General Provisions for scheduling
 - j. Schedule file naming conventions
 - k. Schedule Activity ID naming and description conventions
 - l. Schedule Milestones (project specific)
 - m. Basis of Schedule narrative format and outline
 - n. Schedule Report formats
 - o. Schedule submittal and review procedures
 - p. Schedule disposition procedures
 - q. Schedule Time Impact Analysis procedures for the review and disposition for equitable adjustments for excusable delay claims and or compensable delay claims.
 - r. Change Management process related to time management and cost management for all schedule parties
 - s. Sequencing and timing of procurement activities such as material, equipment and construction material procurement processes (shop drawings, review, disposition, fabrication, delivery, inspection, installation, etc.)
- (5) The City should update the MPS and begin submitting monthly progress updates to the FTA/PMOC.
- (6) The PMOC recommends the City create a flow chart describing a similar process and provide it in the contract documents and describe the process during the pre-construction conferences.